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ABSTRACT

The report describes the two-year activities and accomplishments of the learning skills center at the North Dakota State School of Science. The program provides needed assistance to any students having scholastic difficulty in the general education or related classes of the various vocational programs. It focuses on individual or small group instruction in the basic skill areas of reading, math, and English. The center conducts 12-14 daily reading classes, both remedial and developmental. Tutorial assistance in math and English is available on request or referral. The open center, where math, reading, and English assistants are on duty every afternoon and evening, provides individualized help. The report describes the learning center and each of the various program components--basic study skills, developmental reading, math and science, pre-tech math workshop, tutorial, open center, and individualized study programs--in terms of purpose, function, student selection, teaching procedures and techniques, personnel, and attendance. The testing results of the basic study skills and developmental reading programs are presented. A profile of the average student who used the center during the report period also appears. (NJ)

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ED126317

Final Report
of the
Learning Skills Center
1973-1974

North Dakota State School of Science
Wahpeton, North Dakota

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
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LEARNING SKILLS CENTER PROJECT SUMMARY REPORT

The Learning Skills Center is now concluding its second year of service at the North Dakota State School of Science. The program provides needed assistance to any student having scholastic difficulty in the general education or related classes of the various vocational programs.

A number of students enrolled at the college need assistance in the basic learning skills in order to complete a technical or trade program. Older students returning to be re-educated in a new technical or trade program are offered an opportunity to brush up on their basic skills, whereas other students may need to participate in a developmental or a remedial program. Foreign students and students belonging to various minority races need special assistance also, as necessitated by their different type of education, limited education or linguistic difficulties. In the past many of these students, approximately 200 per year, withdrew from their vocational programs due to difficulty in their related or theory courses.

The program focuses on individual or small group instruction in the basic skill areas of reading, math and English. The center holds from twelve to fourteen daily reading classes, both remedial and developmental. Tutorial assistance in math and English is available upon student request or teacher referral. The Open Center, where math, reading and English assistants are on duty every afternoon and evening provides individualized help, as well as providing a wealth of supplemental material and machines for independent non-credit study in the basic skill areas.

Great strides have been made by ambitious men and women who have worked diligently for self-improvement. Many students, whom it is anticipated would have withdrawn from college due to lack of academic success, are now able to continue in pursuit of their educational goals as a result of the supplemental assistance afforded them through this project.

Participation is shown in the following breakdown of student attendance:

1972-73 Total Enrolment

1. Tutorial program	371
2. Basic Study Skills	173
3. Developmental Reading	290
Total	734

In addition to the above scheduled program the Open Center received 1,009 additional student visits.

1973-74 Enrollment

1.	Tutorial program	566
2.	Basic Study Skills	207
3.	Developmental Reading	365
	Total	1138

In addition to the above scheduled program the Open Center received 1,109 additional student visits.

We are pleased that the proposal for the 1974-75 college year has been approved. This program will again provide the college an opportunity to have personnel available to assist students who need academic help, presenting to all students the opportunity to achieve a vocational goal and in the end become a self-supporting member of society.

REPORT OF THE LEARNING SKILLS CENTER
1973-1974

NORTH DAKOTA STATE SCHOOL OF SCIENCE
Wahpeton, North Dakota 58075

1. Description of Unit:

A. Structure of the Learning Skills Center

1. The Learning Skills Center was established in September, 1972, to provide activities designed for remediation on an individual or small group basis.
2. The following extensions of the program will provide supplemental educational experiences:
 - a. Basic Study Skills 100
 - b. Developmental Reading 100
 - c. Tutorial Program
 - d. Open Skills Center

B. Functions of the Learning Skills Center

1. To provide small group remedial instruction in the Basic Study Skills 100 class in the areas of study skills and reading improvement: vocabulary and comprehension skills.
2. To provide developmental reading instruction in the Developmental Reading 100 class in the areas of reading comprehension and rate.
3. To provide tutorial assistance to students on an individual or small group basis in math, English, science, or other general education core courses.
4. To provide in the Open Center qualified personnel
 - a. To give assistance in math and English problem.
 - b. To direct the Mini-course programs and individualized study programs in communication skills.

C. Personnel of the Learning Skills Center

1. The staff includes a full time coordinator and math instructor, with certified instructors and para-professional aides working on a part time schedule. A team of qualified faculty members is on duty at any time that the Learning Skills is open. Instructors, competent in the major disciplines, are available to meet the various needs of the students (mathematics, reading, et cetera).

Accomplishments:

A. General Information
During the 1973-74 school year

received assistance under the supervision of the Learning Skills Center faculty. These numbers include referrals and walk-ins.

In addition to this, the Open Center received

visits.

B. Specific Areas of Attendance

Basic Study Skills classes served

who received remedial reading and basic study skills instruction.

Developmental Reading classes served

in a developmental program which stresses the improvement of comprehension and rate.

Tutorial classes served

in math, English, and other small group classes.

Assistance from the faculty varied from individual conferenced to continued long-range assistance involving many weeks of work.

fall	446 students
winter	427 students
spring	265 students
	<u>1138 students</u>

fall	356 students
winter	427 students
spring	326 students
	<u>1109 students</u>

fall	80 students
winter	75 students
spring	52 students
	<u>207 students</u>

fall	135 students
winter	125 students
spring	105 students
	<u>365 students</u>

fall	231 students
winter	227 students
spring	108 students
	<u>566 students</u>

- C. An unduplicated count of the enrollment shows the following statistics:

Learning Skills Center

Female: 106 students
Male: 378 students
Total unduplicated 484 students

Developmental Reading
(unduplicated from LSC enrollment)

Female: 88 students
Male: 223 students
Total unduplicated 311 students

SCHEDULE OF THE LEARNING SKILLS CENTER
1973-74
NORTH DAKOTA STATE SCHOOL OF SCIENCE
Wahpeton, North Dakota 58075

<u>Class Hour</u>	<u>Class</u>	<u>Room</u>
8:55 - 9:45	Basic Study Skills	226
	Developmental Reading	223
9:50 - 10:40	Basic Study Skills	226
	Developmental Reading	223
10:45 - 11:35	Basic Study Skills	226
	Developmental Reading	223
11:40 - 12:30	Basic Study Skills	226
	Developmental Reading	223
12:35 - 1:25	Basic Study Skills	226
	Basic Math Instruction	221
1:30 - 2:20	Basic Study Skills	226
	Basic Math Instruction	221
2:25 - 3:15	Basic Study Skills	226
	Developmental Reading	223
	Basic Math Instruction	221
3:20 - 4:10	Basic Study Skills	226
	Developmental Reading	223
	Basic Math Instruction	221
4:10 - 6:00	*Open Center	226
6:00 - 7:00	Technical Math Instruction	221
7:00 - 10:00	*Open Center	226
	Technical Math Instruction	221

Individual or small group tutorial classes usually meet after school or in the evening.

*Supplemental non-credit study in reading, spelling, English, and math.

LEARNING SKILLS CENTER STAFF

Staff Coordinator

Rene Moen
314 N. 14th Street
Breckenridge, MN 56520

Math Instructor

Nuri Hassumani
1621 N. 7th Street
Wahpeton, ND 58075

The following instructors are employed at our center on an hourly basis:

English

Paulette Andrud
1023 North 7
Wahpeton, ND 58075

Hazel Retzlaff
623 North 3
Wahpeton, ND 58075

Math

Judy McDaniel
420 9th Ave. S
Wahpeton, ND 58075

Karen Ovsak
744 Maple
Breckenridge, MN 56520

Reading

Hildur Coen
412 North 13
Breckenridge, MN 56520

Corrine Krueger
1205 North 11
Wahpeton, ND 58075

LEARNING SKILLS CENTER STAFF.

The following assistants are hired as para-professional aides on an hourly basis.

Doris Bruesch
847 3rd S. N.
Wahpeton, ND 58075

Sonja Miller
1310 Westmore Ave.
Wahpeton, ND 58075

Gary Welharticky
Route 1
Breckenridge, MN 56520

Nancy Blevins
Wahpeton, ND 58075

Will Blevins
Wahpeton, ND 58075

GENERAL COMMENTS ON THE 1973-74 PROGRAM

The basic structure of the Learning Skills Center has remained the same in the 1973-74 college year. Changes in staff assignments have been successful in reaching more students and providing an over-all more complete program.

A full time instructor with a math and engineering background was added to the staff, who is in charge of the Math and Science Department. His daily schedule includes afternoon and evening individual or small group tutorial instruction. Continued development of math materials and in-service training of the para professional assistants had also been provided.

During the Open Center hours we have provided more professional instruction in both English and Business Math. Instructors in these areas work with both tutorial students who are coming on a scheduled basis and "drop-in students" who need help with a specific problem.

This type of staff placement requires less scheduling for the coordinator, freeing Mrs. Moen to become involved in more direct classroom instruction and individual tutoring. Major remodeling of a cloakroom area of the center proper allowed the coordinator's office to be relocated in the center, facilitating more adequately the varied tasks of teaching, supervising and directing office procedures.

On the following page a comparative study in the basic structure of the Learning Skills Center in 1972-73 and 1973-74 is presented.

THE LEARNING SKILLS CENTER

Reading:

1. Small group classes.
2. Individualized and small group instruction.
3. Individual help also available during the evening.

Math:

1. Part time assistants provided supplemental assistance.

Open Center:

1. Reading-Spelling: Assistants are available Monday through Thursday from:

4:00 to 10:00

2. English: Instructors came in only by appointment to meet a specific student.

3. Math: A "Math Booth" in a library seminar room provided individual math help on a non-scheduled basis Monday through Thursday from:

12:30 to 5:00
7:00 to 10:00

A business math instructor provided supplemental classes by appointment for students who needed special help.

Reading:

1. Same

Math:

1. Full time instructor provides small groups or individual instruction in the afternoon and evening.
2. Develops math curriculum and materials.

Open Center:

1. Reading-Spelling: Same

2. English: An instructor is available to assist with writing and/or English assignments, to teach mini-courses, and to develop a vocabulary video-cartridge program for the center Monday through Thursday from:

7:00 to 9:00

3. Math: Same, but shorter hours

4:00 to 5:00
7:00 to 9:00

A business math instructor is to work with students needing help on a regular basis, and to assist students who stop by with problems.

BASIC STUDY SKILLS PROGRAM

I. Reasons for Offering Basic Study Skills 107:

- A. Through an analysis of the student needs at NDSSS, it was determined there are students who need an individualized basic reading and study skills program.
- B. This program will be developed to meet the needs of students with severe reading problems who cannot function adequately in the Developmental Reading Program.

II. Purpose of the Basic Study Skills Program:

A. Spelling and Vocabulary

1. Practice analyzing words -- prefixes, suffixes, root forms, vowel and consonant sounds.
2. Train to use sense and perception in pronunciation, meaning and spelling.
3. Review rules for spelling, syllabication, and accent.

B. Comprehension

1. Develop skill in analyzing paragraphs.
 - a. Find main and subordinate ideas
 - b. Evaluate and remember details
 - c. Locate topic sentences
 - d. Develop logical reasoning -- drawing inferences and conclusions.
 - e. Read sentences and identify key words

C. Speed

1. Develop skill in speed of perception and interpretation of phrases and words.
2. Acquire skill at skimming and skanning.
3. Improve individual reading rate with good comprehension.
4. Develop fluency in phrase reading activities to lengthen eye span.

D. Study Skills

1. To acquire and practice study techniques which will aid in reading textbooks and other assignments.
2. To improve skill in locating information in the dictionary and become familiar with the library.
3. To provide practical experience in the construction of single sentences and paragraphs.

III. Manner of Student Selection:

- A. All first-year students were given the Schrammel-Gray Reading Test.
- B. Student selection for the fall quarter included those whose scores were in the tenth percentile or below.

IV. Teaching Procedures and Techniques:

- A. All students attend reading classes four times a week for one quarter.
- B. All students are given the Wide Range Reading Achievement Test to determine the instructional and frustration reading level of each student, and the Wide Range Spelling Test.
- C. At the end of the quarter, the students are given an alternate form of the Schrammel-Gray Reading Test and the Wide Range Reading and Spelling Tests. The purpose of these tests is to note the reading comprehension and spelling efficiency growth during the quarter.

D. Teaching Techniques

- 1. The program is individualized to meet student needs. It provides flexibility for the student with individual incentive and motivation, yet attempts to provide sufficient structure for the student who is unable to move ahead on a self-directed basis.
- 2. A wide variety and range of materials are a necessity. The basic skills are developed through the following materials:
 - a. Spelling and Word Analysis Skills
 - 1. Magnetic Patterns
 - 2. Spelling 1500
 - 3. Language Master Spelling Program
 - b. Comprehension
 - 1. SRA Man Power Kit
 - 2. In Orbit
 - 3. Improving College Reading
 - 4. Specific Skill Series
 - 5. SRA Rate Builders
 - 6. McCall-Crabb Timed Readings.
 - c. Vocabulary
 - 1. EDL Word Clues
 - 2. Programmed Vocabulary
 - 3. Language Master Vocabulary Program

3. Reading machines to improve visual perception skills or to increase reading rate are used.

- a. Visualizer
- b. SRA Pacer
- c. EDL Controlled Reader
- d. Shadowscope

4. A study of the application letter and data sheet is made.

V. Testing Results:

A. Fall Quarter

COMPREHENSION EFFICIENCY PERCENTILE

-1
0
1
2
3
4
5
6 - 10
11 - 19
20 - 39
40 - 59
60 - 85
SUB-TOTAL

TOTAL

NUMBER OF STUDENTS BEGINNING END OF QUARTER OF QUARTER

4	0
4	0
5	3
4	0
10	3
9	9
14	0
30	14
0	17
0	14
0	8
0	5
<u>80</u>	<u>73</u>
	*7
<u>80</u>	<u>80</u>

* Seven withdrew from school.

1. At the beginning of the quarter, the median comprehension was in the 5th percentile.

2. At the end of the quarter, the median comprehension was in the 20th percentile.

B. Winter Quarter

COMPREHENSION EFFICIENCY PERCENTILE

-1
0
1
2
3
44
5
6-10
11-19
20-39
40-59
60-85
TOTAL

NUMBER OF STUDENTS BEGINNING END OF QUARTER OF QUARTER

14	0
2	0
4	1
3	0
15	3
8	4
12	2
17	16
0	18
0	14
0	11
0	6
<u>75</u>	<u>75</u>

1. At the beginning of the quarter, the median comprehension was in the 4th percentile.
2. At the end of the quarter, the median comprehension was in the 11 - 19th percentile.

C. Spring Quarter

COMPREHENSION EFFICIENCY PERCENTILE	NUMBER OF STUDENTS	
	BEGINNING OF QUARTER	END OF QUARTER
-1	10	
0	1	2
1	1	2
2	1	1
3	8	
4	3	2
5	10	2
6-9	18	5
10-19		9
20-39		15
40-59		7
60-85		4
Over		1
	52	50
		* 2
TOTAL		52

* Two dropped

1. At the beginning of the quarter, the median comprehension was in the 5th percentile.
2. At the end of the quarter, the median comprehension was in the 20 - 30th percentile.

D. End of Year Composite

COMPREHENSION EFFICIENCY PERCENTILE	NUMBER OF STUDENTS	
	BEGINNING OF QUARTER	END OF QUARTER
-1	28	0
0	7	2
1	10	6
2	8	1
3	33	6
4	20	6
5	36	15
6-10	65	35
11-19		44
20-39		43
40-59		26
60-85		15
86-100		1
	207	198
		* 9
		207

* Nine withdrew from school

1. At the beginning of the quarter, the median comprehension was in the 5th percentile.
2. At the end of the quarter, the median comprehension was in the 11 - 19th percentile.

VI. Attendance of Basic Skills Classes:

A. 1972 - 73 College Year

1. Fall Quarter.....	69
2. Winter Quarter.....	58
3. Spring Quarter.....	52
Total	<u>179</u>

B. 1973 - 74 College Year

1. Fall Quarter.....	80
2. Winter Quarter.....	75
3. Spring Quarter.....	52
Total	<u>207</u>

VII. General Conclusions:

- A. The results given from the Schrammel-Gray Reading Test show an increase in comprehension.
- B. Success in a class of this nature is dependent upon:
 1. Small class size
 2. Good daily attendance
 3. Variety of materials
 4. Variety of teaching techniques
- C. It is concluded that with encouragement and the presence of the four factors listed above, a learning situation can be created whereby even our most disabled reader can gain confidence and attain skills to help him reach his reading expectancy level.

DEVELOPMENTAL READING PROGRAM

I. Reasons for Offering Developmental Reading Program:

1. Current studies indicate that one of the major reasons for students' scholastic difficulty is that they are unable to read and comprehend properly so as to meet college level standards.
2. It was felt that since North Dakota State School of Science consists of Trade and Technical Divisions, as well as Arts, Science, Pre-Professional, and Business Divisions, many of these students would need help with reading.

II. Purpose of the Developmental Reading Program:

1. To increase each student's reading rate,
2. To improve each student's comprehension efficiency,
3. To enlarge each student's vocabulary, and thus,
4. To improve each student's total reading skill.

III. Manner of Student Selection:

1. All first year students were given the Schrammel-Gray Reading Test.
2. Student selection for the fall quarter started with those that placed below the 30th percentile with the intention of instructing as many students as possible during the quarter.

IV. Teaching Procedure and Techniques:

1. The students attended non-credit reading classes four times a week for one quarter for a total of forty-eight class meetings.
2. The students were given a vocabulary appraisal test to determine their working vocabulary. The program for each student was arranged to fit his individual needs. Throughout the quarter the students were given tests for reading rate and comprehension so they could see their rate of growth.

3. At the end of the quarter the students were given an alternate form of the Schrammel-Gray Reading Test. The purpose of this test was to note the reading rate and comprehension efficiency growth during the quarter.

Teaching techniques used were the following:

- A. Shadowscope Pacers -- These are individual machines controlled by the students to improve their reading rates. The reading material for the pacer was selected from the student's area of interest.
- B. Tachomatic Projector -- This machine was used with reading training film strips. This procedure helps to improve eye span and, consequently, rate and comprehension.
- C. Visualizers -- These are individual instruments employing the flash-recognition principle for improving the visual perception skills.
- D. Educational Development Word Clue Workbooks -- These workbooks were used to help students build a greater vocabulary.
- E. Tests were administered to the students at various times to evaluate their growth in reading rates and comprehension. These tests were so designated that each student could recognize his own shortcomings. They proved to be an incentive and motivation for each student to put forth greater effort.
- F. Essays -- Timed readings in many fields of interest and various degrees of complexity were used, followed by questions. This technique also helped to improve the students' comprehension efficiency.
- G. Students Records -- A complete individual student record was maintained. This record shows the reading rate and comprehension efficiency growth over the quarter.
- H. Grades for this non-credit course were indicated by satisfactory or unsatisfactory.

V. Testing Results:

1. Fall Quarter

READING SPEEDS WITH 70% COMPREHENSION

WORDS PER MINUTE	NUMBER OF STUDENTS	
	BEGINNING OF QUARTER	END OF QUARTER
Below 50	5	0
51-75	2	0
76-100	14	0
101-125	16	0
126-150	42	5
151-175	14	3
176-200	18	3
201-225	10	5
226-250	4	9
251-275	4	12
276-300	3	14
301-325	1	29
326-350	2	7
351-375		13
376-400		5
401-425		9
426-450		3
451-475		1
476-500		1
501-525		1
526-550		1
551-575		0
576-600		0
Over 600		2
SUB-TOTAL	135	123
TOTAL	135	*12 135

*Twelve students dropped

At the beginning of the quarter the students' reading rates ranged from a low 42 to a high of 343 words per minute. The class median ranged between 126-150 words per minute.

At the end of the quarter the final reading rates attained ranged from a low of 133 words per minute to a high of 740 words per minute. The class median ranged between 301-325 words per minute.

READING SPEEDS WITH 70% COMPREHENSION

WORDS PER MINUTE	NUMBER OF STUDENTS	
	BEGINNING OF QUARTER	END OF QUARTER
Below 50	4	0
51-75	4	0
76-100	13	0
101-125	19	1
126-150	19	1
151-175	17	3
176-200	14	2
201-225	10	7
226-250	12	13
251-275	4	12
276-300	3	10
301-325	2	21
326-350	1	14
351-375	1	9
376-400	2	8
401-425	0	6
426-450	0	4
451-475	0	3
476-500	0	2
501-525	0	3
526-550	0	0
551-575	0	0
576-600	0	0
Over 600	0	1
SUB TOTAL	125	120
		*5
TOTAL	125	125

*Five students dropped

At the beginning of the quarter the students' reading rate ranged from a low 50 to a high of 384 words per minute. The median ranged between 151-175 words per minute.

At the end of the quarter the final reading rates ranged from a low of 116 words per minute to a high of 616 words per minute. The class median ranged between 301-325 words per minute.

3. Spring Quarter

READING SPEEDS WITH 70% COMPREHENSION

WORDS PER MINUTE	NUMBER OF STUDENTS	
	BEGINNING OF QUARTER	END OF QUARTER
Below 50	0	0
51-75	0	0
76-100	3	0
101-125	3	0
126-150	10	0
151-175	1	1
176-200	7	2
201-225	50	3
226-250	8	3
251-275	4	5
276-300	6	1
301-325	6	2
326-350	3	4
351-375	2	7
376-400	1	32
401-425	0	7
426-450	0	3
451-475	0	6
476-500	0	0
501-525	0	4
526-550	0	1
551-575	0	1
576-600	0	1
601-625	1	0
626-650	0	0
651-675	0	3
676-700	0	0
Over 700	0	2
SUB TOTAL	105	88
TOTAL	105	*17 105

*17 students dropped

- At the beginning of the quarter the students' reading rates ranged from a low 50 to a high of 380 words per minute. The class median ranged between 201-225 words per minute.
- At the end of the quarter the final reading rates attained ranged from a low of 156 words per minute to a high of 720 words per minute. The class median ranged between 376-400 words per minute.

• COMPREHENSION EFFICIENCY PERCENTILE

	NUMBER OF STUDENTS BEGINNING OF QUARTER	END OF QUARTER
0-9	21	19
10-19	31	14
20-29	34	9
30-39	6	15
40-49	4	14
50-59	2	5
60-69	3	5
70-79	0	5
80-89	1	2
90-100	1	0
SUB TOTAL	103	88
	*2	**17
TOTAL	105	105

*Two students were not pretested
 **Seventeen students dropped

2. At the beginning of the quarter the median comprehension score was between the 10th and 19th percentile.
3. At the end of the quarter the median comprehension score was between the 30th and 39th percentile.

VI. Attendance of Developmental Reading Classes:

A. 1972 - 73 College Year

1. Fall Quarter.....	99
2. Winter Quarter.....	107
3. Spring Quarter.....	84
Total	290

B. 1973 - 74 College Year

1. Fall Quarter.....	135
2. Winter Quarter.....	125
3. Spring Quarter.....	105
Total	365

VII. General Conclusions:

1. The results given showing the increase in comprehension were obtained through a different form of the Schrammel-Gray Reading Test.
2. The results given showing the increase in speed were obtained from computing the reading rate of reading material at high school senior or college reading level at seventy percent comprehension.
3. Special emphasis was given to reading flexibility. While a great deal of time was spent increasing students' reading rates, students were given practice in using slower speeds on more technical material.
4. It is true that students ranking below the 30th percentile generally benefit much from this type of instruction, making them more successful candidates for an academic curriculum.

MATH AND SCIENCE DEPARTMENT REPORT

I. Purpose

- A. This department assists the students who need supplemental instruction in the math, science and technical areas.
- B. This department provides assistance and guidance to the Learning Skills Center's math and science tutorial and mini course programs.
- C. Curriculum of a supplemental and remedial nature for the math and science courses is being developed.
- D. Assistance is given to the Learning Skills Center's coordinator with projects that are of a technical nature, such as the "Math-workshop 1972-73".
- E. Inservice training for the para-professional assistants is provided.

II. Manner of Student Selection

- A. A student may be referred by his classroom instructor.
- B. A student may make a personal request to attend the center.

III. Teaching Procedures and Techniques

- A. "One to one basis" of help is given when the need of the student is specific in nature or because the student's learning abilities does not permit him to keep pace with a group.
- B. Assistance is provided on a "small group help session" basis with students who have similar problems.
- C. The following programmed materials, self pace learning devices, and supplemental video tape lessons in math, science and technical subjects are available.
 - 1. Computational Skills Development Kit (SRA)
 - 2. Arithmetic Fact Kit (SRA)
 - 3. Algebra Skills Development Kit (SRA)
 - 4. TEMAC Programmed Learning Materials
 - 5. Video tape lessons on, "Introduction to Algebra" (developed by the Learning Skills Staff)
 - 6. Video tape lessons on the basic concepts of electricity (developed by the Learning Skills Staff)
 - 7. Audio tutorial program for slide rule

IV. Accomplishments:

A. The "Math and Science Department" assisted the following students in the 1973-74 college year. These students are recorded as tutorial students in the attendance composite.

1. Fall Quarter.....	135
2. Winter Quarter.....	134
3. Spring Quarter.....	<u>49</u>
Total	278

REASONS FOR HAVING THE MATH AND SCIENCE DEPARTMENT

Students with various mathematical and science backgrounds are enrolled at North Dakota State School of Science. Those who have had difficulty in their courses, because of a weak background in math, science, or both, have been referred to the Learning Skills Center.

One of the objectives of the technical division at our college is to ¹"Provide the technical graduate with a working acquaintance with Science and Engineering fundamentals". In this context, the Math and Science Department of the Learning Skills Center provides assistance to students in maths, science and technical subjects. Often a student's difficulty with a scientifically oriented vocation reflects the fact that his background in those areas has been insufficient. This makes it difficult for him to continue successfully to develop the knowledge and skills of his vocation without remedial help.

The student who is weak in maths is invariably weak in all of his ²"science" and technical courses as well; the reason being, that all science and technical courses are inter-linked with mathematics, and draw extensively on the mathematical concepts to explain the theoretical material in their specific area of study. In the past the students with these kinds of problems have either changed their vocation or dropped out of school. The Math and Science Department of the Learning Skills Center will provide the remedial help necessary for this type of student to continue in his vocation and stay in school.

¹N.D.S.S.S. - BULLETIN 1973-74 Page 117 - "General Objectives"
1974-75

²"Science" - As taught to the vocational students at S.S.S.

Students in the trades and business division at our college who have had very limited exposure to maths, find themselves handicapped in their trade and business math courses. Problems of these students can be overcome by a concentrated, individualized help in basic maths as provided by the math and science department at the center.

A number of students were given remedial help in the maths, science and technical courses during the 1972-73 year. In order that the Learning Skills Center may continue to provide the remedial help necessary in the maths, science and technical areas, the "Math and Science Department" is proposed. A full time instructor with a math and engineering background was added to the staff of the Learning Skills Center in 1973-74 and is in charge of this department at the Learning Skills Center.

PRE-TECH MATH WORKSHOP
August 1972-73

I. Purpose

- A. To have a one week math workshop dealing with the fundamental concepts of basic algebra, trigonometry and slide rule.
- B. To present this one week program in such a manner that the participants would benefit in the following ways:
 - 1. Review of high school math.
 - 2. Introduction to topics in math which would be covered more extensively in the student's respective vocational math course.

II. Manner of Student Selection

- A. Students with less than 17 points for their math score on the ACT test were contacted.
- B. Students could make a personal request to attend the math workshop, regardless of their ACT test score. (For the benefit of those who have not taken the ACT test)

III. Teaching Procedures and Techniques

- A. The assistance provided was implemented in the following ways.
 - 1. A "one to one basis" of help was given when the needs of the students were specific in nature or because the student's learning abilities did not permit him to keep pace with a group.
 - 2. Assistance was also provided in small group help sessions. This was done when 3 or more students had similar problems and learning abilities.
 - 3. Programmed materials, self paced learning devices, and supplemental video tape lessons in math were made available to the students.

IV. Materials

- A. Computational Skills Development Kit (SRA)
- B. Arithmetic Fact Kit (SRA)
- C. Algebra Skills Development Kit (SRA)
- D. TEMAC Programmed Learning Materials
- E. Video tape lessons on, "Introduction to Algebra" (developed by staff)

V. Accomplishments

- A. Nineteen students completed the one week math workshop
- B. Student evaluations felt the workshop helped them become better prepared to begin a technical program. Several students recommended the program be extended to a period of two weeks.

VI. Proposed Changes in the Math Pre-Tech Workshop

- A. The guidance department will participate in the workshop in a beginning orientation sessions and a final evaluation session, where counseling in career choices will be available, if necessary.

TUTORIAL PROGRAM

I. Reasons for Offering the Tutorial Program:

- A. Records show that many students enrolled in a vocational technical program experience difficulty in their math, science, English or other general education core courses, and as a result will drop out of school.
- B. This tutorial program is designed to provide the supplemental academic experiences, whereby the student may master the concepts of his course and remain in school.

II. Purpose of the Tutorial Program:

- A. To provide instruction for the student who has a poor skills background.
- B. To provide a review of skills and concepts for the student who has been out of school for some time.
- C. To provide supplemental teaching and practice for the student with a lower ability level.
- D. To provide instruction for the student who is experiencing difficulty in a specific area.

III. Manner of Student Selection:

- A. A student may be referred by his classroom instructor.
- B. A student may make a personal request to attend the center.

IV. Teaching Procedures and Techniques:

- A. The student attends an individual or small group class which provides supplemental academic experiences to reinforce the classroom instruction, striving for mastery of the concepts and skills of the student's course.
- B. This remedial and developmental aid is available when the student has free time, anytime during the day or evening.
- C. No tests or homework are given.

V. Accomplishments:

A. The tutorial program assisted the following students in the 1972-73 college year.

1. Fall Quarter.....	165
2. Winter Quarter.....	125
3. Spring Quarter.....	81
Total	<u>371</u>

B. The tutorial program assisted the following students in the 1973-74 college year.

1. Fall Quarter.....	231
2. Winter Quarter.....	227
3. Spring Quarter.....	108
Total	<u>566</u>

THE OPEN CENTER

I. Functions of the Open Learning Skills Center:

- A. The center will be open during the day and evening to give assistance to any student at any time with specific problems pertaining to their class assignment.
- B. The center will provide a variety of materials, i.e., films, strips, slides, tapes, et cetera, to provide meaningful learning experiences on an individualized basis.
- C. Available at the center will be programmed mini-courses (a short unit of study which will teach one specific skill) and programmed self-help individualized materials in math and English.
- D. The center will provide a variety of materials and machines to teach skills in reading and spelling.
- E. An individualized program will be made available to any student who has completed either of the reading classes, yet needs further assistance.

II. Personnel:

- A. Instructors are available to help students with assignments in math, business math and English.
- B. Assistants are qualified to diagnose and prescribe remedial programs in reading and spelling.
- C. Assistants will administer the pre-testing, post-testing, and the introductory teaching of the mini-courses and self-help materials.
- D. Assistants will supervise and give instruction in the use of teaching machines.

III. Accomplishments:

- A. The center received the following non-scheduled student visits in the 1972-73 college year.

1. Fall Quarter.....	163
2. Winter Quarter.....	417
3. Spring Quarter.....	429
Total	1009

- B. The center received the following student visits in the 1973-74 college year.

1. Fall Quarter.....	356
2. Winter Quarter.....	427
3. Spring Quarter.....	326
Total	1109

INDIVIDUALIZED STUDY PROGRAMS

I. Function of the Individualized Study Programs

- A. These study materials are designed to provide sequenced, meaningful learning experiences on an individualized basis.
- B. Materials on all prerequisite basic skills will be available through this individualized study plan in English and math.

II. Selection of Study Materials

- A. The classroom instructor will assign a specific mini-course or area of concentration to a student.
- B. A student may request a particular course or specify an area of need.
- C. A tutor may begin a mini-course or other materials with a student and allow him to finish it by himself.

III. Description of the Mini-Course

- A. The student will take a pre-test to determine specific problem areas.
- B. The assistant will introduce the unit of study and teach the specific skill.
- C. The student will work practice sheets.
- D. The student will take a post-test to see if he has mastered the course content.

IV. Description of the Video Tape Lessons

- A. The video cartridge machine allows students to watch a lesson on a television monitor.
- B. A booklet is provided which lists the aims and purpose of each lesson, as well as providing sample solutions, diagnostic test, practice problems and answers to the practice problems.

V. Description of the Language Master Programs

- A. The language master machine provides active student involvement with pre-recorded lesson cards.

VI: The following programs are either completed or in the process of being developed:

1. Beginning Algebra Video Cartridge Program
2. Electronic Math Video Cartridge Program
3. Electrical Math Video Cartridge Program
4. Basic Math Video Cartridge Program
5. Word Power Made Easy - English Vocabulary Video Cartridge Program
6. English mini-course (packet form)
7. Language Master Spelling Demon Program - Level I, II, III
8. Language Master Phonics Program
9. Language Master Word Recognition Program
10. Language Master Nurses Vocabulary Program
11. Language Master Auto Mechanics Program
12. Language Master Diesel Mechanics Program

STUDENT EVALUATIONS

It's going to be a long summer and I don't want to waste time like I did last summer and the summer before. I have a lot to learn, in about every subject there is, in education. I'm going to really try to do my best to not waste any of my time. I can't afford to waste any. There's so much I want to learn and I'm going to, too! It's going to take awhile but at least I'll get it down.

Mrs. Retzlaff, my English tutor, was a great help to me during the spring quarter. She taught me all about verbs, nouns, prepositional phrases, and how to write paragraphs. Without her help I would not have been able to pass any of my courses that I took this year.

This paragraph class was fun. At first I only thought of it a drudgery, but I've found it can be not only fun but educational also. I'd like to thank you for your efforts toward bettering my education.

Mrs. Moen, thank you for your help in getting our son through a difficult course for him. Physics. I know without your help, Mr. Hassumani's and his tutors help he would of been in trouble. I hope we won't need to thank you again for any other courses but if we do, I know it will be there. As parents we are very appreciative. Thank you.

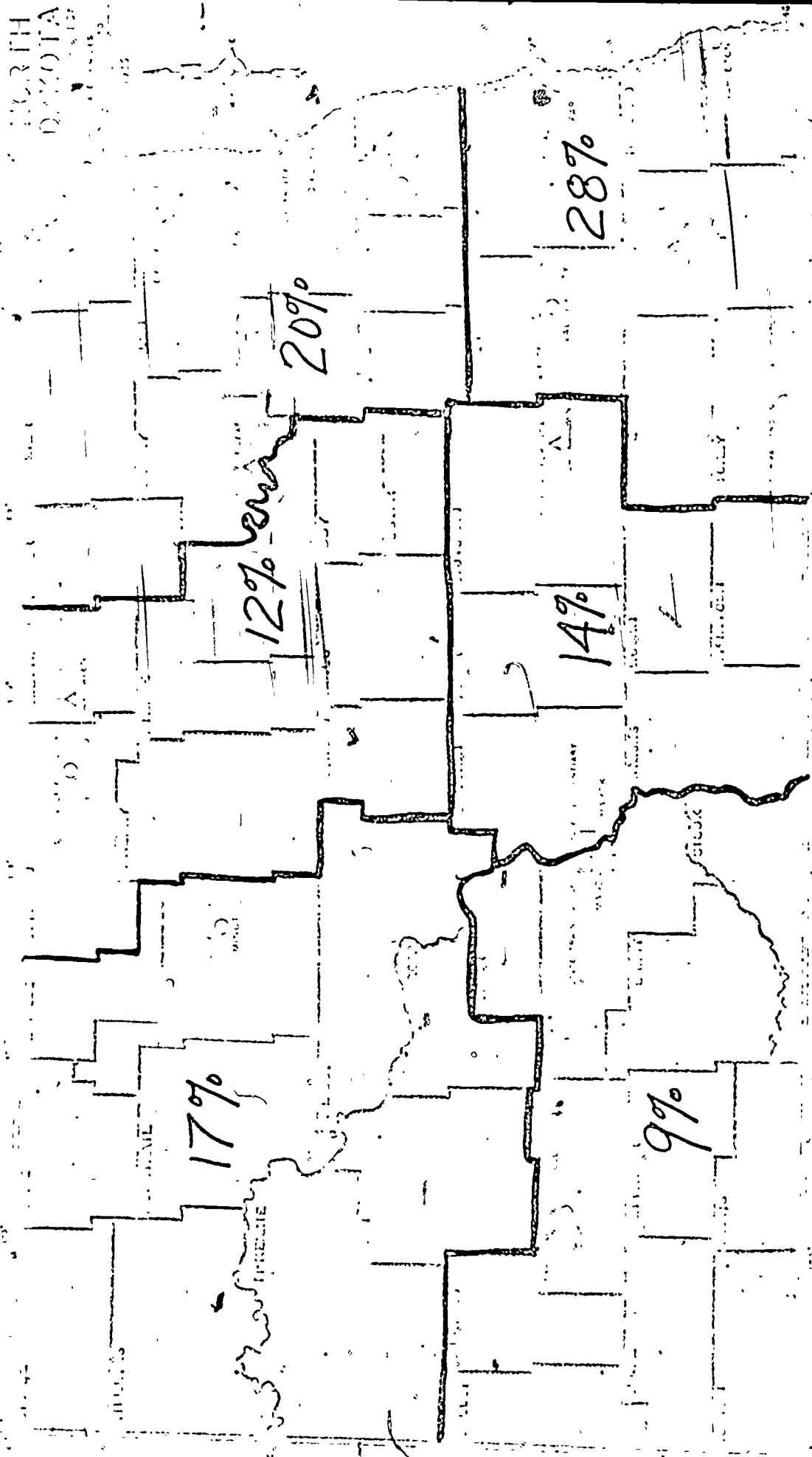
RESEARCH-ON L S C STUDENTS

The following report was made on students that came to the Learning Skills Center, during the fall and winter quarters of the school years 1972-73 and 1973-74. The students have utilized the LSC facilities on occasions when they needed special help in specific areas, or on a regular basis.

1. The typical student that came to the LSC was from a North Dakota school of less than 300 students.
2. His average age was 20 years.
3. His average ACT scores for Math and English respectively were 11.5 and 10.4.
4. The following chart shows the distribution of the students that came to the LSC in terms of percents against their respective high school population.

<u>Population of High School Attended</u>	<u>Percentile of Student Attendance at LSC</u>
0 to 100	22%
101 to 300	39%
301 to 600	15%
601 to 900	5%
901 and above	19%

5. The attached map shows the percent distribution of the students around the state of North Dakota that attended the LSC.



% of students from each of
6 areas attending L.S.C.

STATE INSTITUTIONS OF NORTH DAKOTA

LEGEND

- 1. STATE INSTITUTIONS
- 2. PRIVATE INSTITUTIONS
- 3. EDUCATIONAL INSTITUTIONS

DATA SOURCES BY COUNTY AND STATE